DOCUMENT RESUME

ED 238 096 EA 015 766

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TITLE Rational Bureaucracy or Loosely Coupled System? An Empirical Comparison of Two Images of Organization.
INSTITUTION Research for Better Schools, Inc., Philadelphia, Pa.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Dec 82
GRANT NIE-G-81-0030
NOTE 36p.; Table 5 contains small print.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Bureaucracy; Cluster Analysis; Discriminant Analysis; Educational Improvement; Elementary Secondary Education; Models; *Organizational Climate; *Organizational Theories; *School Organization; Tables (Data); Teacher Administrator Relationship
IDENTIFIERS *Loosely Coupled Systems

ABSTRACT

According to organizational theory, the administrative structure of schools has an effect on the feasibility and ease of improving their operation. To determine whether schools are better characterized as rational bureaucracies or as loosely coupled systems or whether some schools belong to each model, four dimensions were operationalized (goal consensus, centralization of influence, vertical communication, and rule enforcement) that would receive high scores in a rational bureaucracy. Approximately 1,300 teachers from a random sample of 50 schools drawn from southeastern Pennsylvania were administered questionnaires that collected data concerning the organizational structures of their schools. A series of cluster and discriminant analyses revealed two distinguishable groups of schools, one associated with each model. The results of this research have substantial practical as well as theoretical utility. (MLF)

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RATIONAL BUREAUCRACY OR LOOSELY COUPLED SYSTEM?

AN EMPIRICAL COMPARISON OF TWO IMAGES OF ORGANIZATION

December, 1982

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RATIONAL BUREAUCRACY OR LOOSELY COUPLED SYSTEM?
AN EMPIRICAL COMPARISON OF TWO IMAGES OF ORGANIZATION[1]

An important issue for organizational research is to develop, refine, and--where possible--evaluate competing images of what organizations are like as social entities. By "image" we mean simply a mental picture of the phenomenon under consideration. Some images can be codified to form models or ideal types. However even, or perhaps especially, in their less formalized manifestations, images can have profound impacts. They do so because data about organizational life do not stand on their own. They are interpreted in light of the belief systems brought to them by individual researchers and practitioners (Kuhn, 1970; Morgan, 1980).

Thus, images of organization can guide both research and practice. On the research side, a great deal has been learned about the structure of organizations and what affects it by efforts to operationalize the Weberian bureaucratic ideal type (Blau, 1970; Hall, 1963; Pugh, Hickson, Hinings, and Turner, 1968). Although researchers can generally tolerate a variety of competing images, practitioners cannot because different images generally have contradictory implications for practice. Corwin (1973) argues that many of the social action programs of the 1960s were based on a bureaucratic imagery which erroneously led policy makers to view human service organizations as potent instruments for social reform. By contrast, such alternative views as the ecological image (Aldrich, 1979) suggest that it is very difficult for leaders to control and change organizations in any purposeful way. Thus, the diversity of images that social scientists em-

ploy can preclude offering consistent advice to managers and policy makers and can confuse practitioners about the range of their discretion.

Currently, a variety of images are competing for attention. These include established ones like the bureaucracy (Weber, 1947) and the system (Katz and Kahn, 1966) and more recent ones like the polity (Bachrach and Lawler, 1980), the economy (Williamson, 1981), the garbage can (Cohen, March and Olsen, 1972), and the clan (Ouchi, 1980). Such diversity, and the associated difficulty in knowing how to choose among competing images, supports Benson's (1982) conclusion that there is currently a "paradigm crisis" in organizational research.

There are a variety of ways to cope with such diversity. One is to attempt to integrate the insights of different images into a unified conceptual framework that takes a propositional form (Thompson, 1967; Hage, 1980). Another is to codify this diversity by explicating alternative images and showing how they lend different insights to the same situation (Allison, 1971; Scott, 1981). A variant on such codification is to develop contrasting images as ideal types and identify the conditions under which each is most accurate descriptively (Burns and Stalker, 1961; McGregor, 1960). This third approach has practical as well as theoretical benefits, for it posits that under specific conditions different ways of thinking about management issues are most appropriate.

In order to extend the codification approach we have operationalized two images of organization--the rational bureaucracy and the loosely coupled system--to learn if organizations corresponding to each image can be found within a given organizational class. These two images were selected primarily because of their different implications for practice and

because there is an active effort in a variety of practical fields--higher education (Cohen and March, 1974) elementary and secondary education (Willower, 1980), social work (Gummer, 1982), and the military (Sabrosky, Thompson, and McPherson, 1982)--to cope with their discrepant implications. In the sections that follow we contrast these images conceptually, operationalize them through a survey of one class of organizations--public schools--show that entities corresponding to each image can be identified within that class, and discuss the practical and research implications of this finding.

Comparing Two Images of Organization

The two images being contrasted come out of different theoretical traditions. The rational bureaucracy is generally seen as a formally organized social structure with clearly defined patterns of activities in which, ideally, every series of action is functionally related to the goals of the organization (Merton, 1968). This image assumes both considerable agreement among members on organizational goals and that activity is integrated by such mechanisms as the centralization of control, the promulgation and enforcement of rules, and substantial communication up and down the chain of command. This image of rational bureaucracy was developed as an ideal type by Max Weber (Gerth and Mills, 1946) to be used in cross-national, historical research, and later became a widely accepted source of variables for quantitative comparative research (Blau, 1970; Hall, 1963; Pugh, et al., 1968).

The image of the loosely coupled system was developed more recently to describe organizational settings where goals are ambiguous and cannot

easily be shared, hierarchies of authority are not effective integration mechanisms, rules are ignored or unknown, technologies are unclear, and participation is fluid (Cohen, March and Olsen, 1972; Meyer and Rowan, 1977; Weick, 1976). Subsequent work has generalized this original thinking to include more conventional settings where participation is less fluid (Padgett, 1980). Much of the work in this field emphasizes model building and speculation. While this image appeared quite recently, its relationship to earlier ideas is in dispute. Many of its proponents, and most managers seeking to use it, view the loosely coupled system as a new departure, but others argue that it is better seen as an extension of developments in organizational sociology that have been under way for some time (Corwin, 1981).

These two images suggest very different ideals for what organizations should be like and have contradictory implications for the role of management. The rational bureaucracy is a tightly knit place where top administrators have considerable discretion to improve their organizations. Corwin (1974:253) captures its flavor by suggesting that "'rationality' results from integration between means and ends which is produced by interdependency and firm control by enlightened administrators." The organization is attempting to achieve a clear set of ends and the task of management is to see that this happens. By contrast the loosely coupled system is more a collection of subunits with only the most tenuous relationships among them. Under these circumstances, the initiative of management is severely limited. Padgett (1980) suggests that the major lever that top management has is to hire good staff and hope they work out. Speaking more graphically about public schools as loosely coupled systems,

March (1978:219) argues that "changing education by changing educational administration is like changing the course of the Mississippi by spitting into the Allegheny."

While these two images highlight different aspects of organizational life, the contrast in their practical implications suggests a starting point for empirical comparison: the linkages between the managerial and production subsystems of the organization (Parsons, 1960). The image of rational bureaucracy implies that a series of tight bonds are created by such factors as the formal hierarchy of authority, the use of rules, and an understanding of the organization's goals. These bonds are notably absent in the loosely coupled system, and a good deal of attention is devoted in its imagery to the functions and disfunctions that derive from such structural "looseness."

To examine the possibility that some organizations correspond more to one image while others are more like another image, one must explicate these images in terms of a series of salient interimage differences. These differences can then be operationalized as measurable organizational dimensions and appropriate data collected. If our expectation that some organizations within a given class correspond to each image is correct, then cluster analysis should yield two distinct groups.

Four dimensions of linkage seem to distinguish the rational bureaucracy and the loosely coupled system. In each case the rational bureaucracy is expected to be higher than the loosely coupled system. The first dimension is goal consensus which is defined as the extent to which the staff of an organization agree on what are its basic purposes. Since the rational bureaucracy is a purposive organization, one would expect

organizational goals to permeate all levels to some extent and be recognized and accepted by staff. By contrast, goals are relatively unimportant in a loosely coupled system, subject to redefinition by events and likely to be perceived quite differently in different parts of the organization.

Our other three dimensions tap aspects of the formal hierarchy of control which is central to the bureaucracy but not at all salient to the loosely coupled system. Centralization of influence measures the extent to which managers control decisions, especially those relevant to production processes. The classic rational bureaucracy is quite centralized while the loosely coupled system is not. Rules exist in both images, but they serve different functions. In the rational bureaucracy, rules are important impersonal means of control and are likely to be enforced. In the loosely coupled system, they are a means to legitimate the organization to external constituencies, so rule enforcement--the crucial aspect of this dimension--is less common. Finally, vertical communication measures the amount of discussion and interaction between managers and workers. It should be relatively high in the rational bureaucracy as managers collect information to assess goal attainment, exercise influence, and enforce rules. In contrast, it ought to be much less frequent in the loosely coupled system.

Selecting a Sample of Organizations

To test the view that two images can be used to characterize one class of agencies, we chose to focus on American public schools. Schools provide an especially useful setting for two reasons. First, there is currently an active debate about the utility of both images for thinking about schools.

Advocates for the loose coupling image have applied it specifically to schools (March, 1978; Weick, 1982) while others have cautioned that this image may be misleading if applied in the absence of more conventional thinking about schools (Corwin, 1981; Willower, 1980). Second, schools have been examined empirically using each image separately. There has been substantial study of bureaucratization in education (Anderson, 1968; Moeller, 1964). In addition there is a long tradition of characterizing schools in terms of structural looseness and a pattern of zoning of authority thought to limit administrative influence over production issues (Bidwell, 1965; Lortie, 1969), a tradition supported by some recent empirical work guided by the loose coupling image (Meyer, Scott, Cole and Intili, 1978; Daft and Becker, 1978). Since both images have been used independently in thinking about schools, this class of organizations provides an ideal setting for determining their applicability when put into competition with each other.

To assess the degree to which schools do in fact correspond to these two images, data were collected from a simple random sample of 50 schools. The predefined population from which this sample was drawn consists of the 1407 public schools enrolling at least 150 pupils and located within a 15 county region of southeastern Pennsylvania. This region contains a wide diversity of communities, ranging from Philadelphia (the nation's sixth largest city) to relatively isolated rural areas. In between these two extremes are five medium-sized industrial cities (Allentown, Bethlehem, Lancaster, Pottstown and York), a major regional trading center (Reading), and the state capitol (Harrisburg).[2]

Measurement Procedures

The procedures used to operationalize the four dimensions that distinguish between the two images of organization follow the tradition of multi-informant, multi-organization research (Seidler, 1974). This approach uses a summary score (generally the mean) based on the pooled reports of a group of organizational members to characterize the organization. In our case four steps were followed. After explicating the theoretical reasons for using the four dimensions as the key determinants of image (see preceding sections), we first searched the empirical literature on organizations for extant measures and considered their applicability to a study of schools. Combining this knowledge with our experience in conducting a pilot study of 13 schools (Firestone and Herriott, 1982a), we adapted several sets of existing questionnaire items.

The second step was to survey approximately 1300 teacher informants within the 50 school sample. All questionnaires were administered by a member of the research staff in a group setting within each school. Questionnaires were completed by teachers within each school setting who had at least one year of experience in their current school. The number of teacher informants ranged from a low of seven in a school with eight experienced teachers to a high of 69 in a school with an eligible staff of 81 teachers. The median number of teacher-informants per school was 21 and the average within-school response rate was 87 percent.

The third step was to create school-level scores from the item-level responses of individual informants. In the case of Goal Consensus, where our raw data represented a rank ordering of seven goals by each informant, a single statistic was calculated directly for each school that reflected

the degree of agreement among all informants across the seven items. For the sets of items reflecting the other three dimensions, each item first underwent examination to assess the appropriateness of aggregation to the school level. One-way analyses of variance were conducted to measure the size of between-school variation in teacher reports in comparison to within-school variation. Only items exhibiting statistically significant discrimination among schools were included for further analysis. Surviving items were aggregated across all informants in each school to obtain a set of school-level scores for each school on each item.

The final step in the measurement process involved the summarization of multiple items into dimension scores for each school. Correlation matrices of all items within each dimension were examined to rule out any items with weak associations with the other items of its dimension set. The surviving items were subjected to a reliability analysis to evaluate, via Cronbach's (1951) Alpha, the extent to which subsets of items cohered as a group. Items that would reduce the Alpha coefficient were eliminated from further analysis. The surviving items were combined as a simple average to arrive at single score for each school on each dimension. Summary statistics for each of the four school scores, including the results of the reliability analysis, are presented in Table 1. Appendix I presents a

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Table 1 about here

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complete list of the four sets of items from the questionnaire with the subset of items included in each score identified. The following section provides a more detailed accounting of the procedures followed for each of the four dimensions.[4]

Goal Consensus

We focused on product goals (Perrow, 1970), those associated with an organization's output. For schools, product goals refer to student capabilities. We asked our teachers to rank seven goals in terms of their importance to them as a member of the school. Our organizational measure was the amount of consensus, or agreement among teachers on the relative importance of the seven goals. To obtain a Goal Consensus score for each school we computed Kendall's (1948) coefficient of concordance (W), a statistic analogous to the averaged rank order correlation among all pairs of individuals within each school.

Centralization of Influence

To measure centralization of influence, we asked teachers to rate separately on a four point scale the degree of influence of "teachers" and "the principal" over nine decision areas. A centralization score for each teacher for each area was computed by subtracting the reported teacher influence from the reported principal influence. A score of +3 represents complete centralization of influence by the principal, -3 complete decentralization of influence to teachers, and 0 a balance between teachers and the principal. All nine decision areas had statistically significant interschool variation and could be aggregated to the school level. An examination of the correlation matrix of aggregated responses across schools for these areas suggested two distinct sets of decision areas: four focusing on decisions related to the school's production subsystem (i.e., instructional activities) and five associated with the managerial issues. In

computing a Centralization of Influence score for each school we relied on only the first set because of our interest in managerial control over production issues.

Rule Enforcement

To measure rule enforcement teachers were asked whether policy in seven areas related to their work existed in their school, and if so, how often it was enforced. The response categories ranged along a six point scale from "never" to "always". The analysis of variance revealed that six of the seven areas discriminated among schools. An examination of the correlation matrix of school scores for the remaining areas suggested that four of the six areas cohered as a group. A final reliability computation revealed one discrepant area, producing a Rule Enforcement score for each school that combined three policy areas.

Vertical Communication

Because of our interest in coupling between the managerial and production systems, we wanted to tap the degree of interaction between the subsystems. Teachers in each school were asked how often they discussed issues with school administrators. Ten topics of recurring importance were identified. The frequency of communication responses were distributed across a six point scale from "never" to "once a day or more". Eight of the topics produced statistically significant between-school differences. Examination of the correlation matrix of the aggregated school-level means revealed five topics that were closely related. All five were included in the Vertical Communications score for each school.

Interdimension Association

Our juxtaposition of alternative images of organizations assumes that the four organizational dimensions explored in this study cohere in specific ways. The rational bureaucracy image implies that schools should be uniformly high on Goal Consensus, Centralization of Influence, Rule Enforcement, and Vertical Communication while the loosely coupled system image suggests that all schools should be low on these same dimensions. We are exploring an alternative possibility: that some schools are uniformly high and others uniformly low on these measures. For this possibility to exist, there must be a positive association among the four dimensions within our sample of 50 schools, and this is in fact the case. Pearson product-moment correlations coefficients computed for all six pairwise combinations of the four dimension scores range from a high of .64 to a low of .24 with a median of .35 (Table 2). These coefficients are all statistically significant at below the .05 level. Whether such coherence among dimensions is indicative only of a single elongated cluster of schools or of two clusters each of which is associated with a different ideal image is the central question of this study. It is to it that we now turn.

Table 2 about here

Identifying and Describing the Clusters[5]

The approach employed in identifying and describing a series of clusters involved several steps. First, cluster analysis was employed to test for the existence of two distinct groups within this sample. Next discriminant analysis was used to validate the results of the cluster analysis and

to examine the independent and joint contribution of variables to the assignment of schools to one or the other cluster. This process was followed through three iterations: the first was based on the two most highly correlated variables--Goal Consensus and Centralization of Influence (hereafter called the "GC pair"), the second added Rule Enforcement to the first two variables (the "GCR triple"), and the third added Vertical Communication (the "GCRV quadruple"). After describing the results of the cluster and discriminant analyses, the cluster assignments across the three iterations are summarized.

Cluster Analysis

For each of the three variable sets, the cluster analysis began with the creation of two hypothetical "cluster leader" organizations, one representing the "ideal" rational bureaucracy and the other, the "ideal" loosely coupled system. Within each variable set the ideal rational bureaucracy was constructed as an organization having the maximum of the observed scores for each variable in that set and the ideal loosely coupled system as the one having the minimum of the observed scores. After converting all 52 scores--the 50 real and two hypothetical ones--on each of the four variables to standard form (zero mean, unit variance), the Euclidian distance between each organization and each cluster leader was computed. Each real organization was assigned to the cluster whose leader it was closer to.

The results across the three iterations are highly consistent. Within the GC pair, 24 organizations are defined closer to the rational bureaucratic extreme and 26 to that of the loosely coupled system. Moreover, there are relatively few organizations near the common boundary of the two

clusters (Figure 1). There are 23 rational bureaucracies in the GCR triple and 22 in the GCRV quadruple with the others classified as loosely coupled systems in each case. For all iterations, the mean Euclidian distance between cluster leaders and their member organizations is small in

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Figure 1 about here

comparison to the comparable distance between cluster leaders and their non-member organizations, another empirical indicator of consistent separation of the two clusters (Table 3). Thus, within this random sample an empirical distinction between organizations that are more like rational bureaucracies and those that are more like loosely coupled systems seems to exist.

Table 3 about here

Discriminant Analysis

Whereas our cluster analysis took cluster membership as problematic and attempted to make an orderly assignment of organizations, our discriminant analysis took membership as given by the cluster analyses and attempted to validate and explain it. For each variable set, an ordinary least squares criterion was used to determine the best weighted average of the variables in that set for predicting image membership. The resulting weights were then used to make ordinary least squares predictions for each organization which could be compared with the assignments made by the Euclidean distance criterion of the cluster analysis. For the GCRV quadruple there is complete agreement between the two modes of analysis, and

for the GCR triple and the GC pair there is only one instance (different in each case) of disagreement (Table 4).

Table 4 about here

For all three variable sets, the combination of variables acting jointly explains a substantial proportion of the variation in image assignment (ranging from 64 percent for the GCRV quadruple to 73 percent for the GC pair). For the GC pair, the independent contribution of Goal Consensus and Centralization of Influence as measured by their standardized discriminant function coefficients is roughly the same, while for the GCR triple that of Centralization of Influence is greater than that of either of the other two variables. For the GCRV quadruple the greatest independent contribution to the explanation of image assignment is made by Goal Consensus, followed by Rule Enforcement, Vertical Communication and Centralization of Influence (Table 4).

Inter-Analysis Consistency

While there are some minor differences among the six analyses in the number of organizations assigned to each cluster and in the degree to which membership can be explained by each of the four variables, differences across the analyses seem rather minor in contrast to their similarities. In Table 5 the 50 organizations are portrayed with respect to their assignment by the three cluster analyses. Inconsistencies between assignment by the cluster and discriminant analyses are noted. These six analyses are not statistically independent; the discriminant analyses took as given the results of the cluster analyses and the three variable sets have

overlapping variables. Nevertheless, the consistent manner in which 43 of the 50 organizations are assigned to clusters suggests that within the public school population from which this sample was drawn, there is a stable distinction between the two clusters. Moreover, given the similarity of this population to schools more generally, it seems plausible that the empirical distinction found here exists rather widely.

Table 5 about here

Discussion

Our research set out to determine if organizations in a given class are better characterized as corresponding to the image of the rational bureaucracy or of the loosely coupled system or if both images are useful. After identifying and operationalizing four dimensions that distinguish between the two images, a series of cluster and discriminant analyses were carried out to see if, as we expected, there were in reality two distinguishable groups of schools. Distinct groups were found, with our R-schools clearly resembling the rational bureaucratic image in terms of internal goal consensus, centralization of influence, rule enforcement, and vertical communications while the L-schools were more like the image of the loosely coupled system.

This ability to identify schools corresponding to different images within a single class of organizations suggests a useful way to reexamine the debate within practitioner groups about the relative utility of these two images. It seems reasonable to conclude that some organizations are more like the rational bureaucracy and others more like the loosely coupled system. Such a conclusion makes the choice of image much less of a

"metaphysical" issue. In fact these two images can be compared to existing typologies, particularly Burns and Stalker's (1961) distinction between organic and mechanical organizations. This earlier typology also stresses differentiation between types in terms of formal hierarchy, vertical communication, and the use of rules as a form of control. Burns and Stalker's organic form would probably be lower than their mechanical form on three of the four variables measured here. However, there are some other differences between it and the loosely coupled system. The organic form seems to assume a reasonable amount of goal consensus and a high degree of interdependence and lateral communications among specialists seeking solutions to common but rapidly changing problems. Vertical communication in this form is not necessarily low in absolute terms; rather it is low relative to horizontal communication and it tends to be more consultative than authoritative. The loosely coupled system, at least in schools, is a situation where interdependence is reduced because the professional staff work alone in separate work areas. Moreover, there is a strong emphasis in the loosely coupled image on the absence of goal consensus.

There is another contrast between these two sets of types. The difference between the Burns and Stalker (1961) types stems largely from technological determinism. The mechanical form is appropriate for a situation where there is a routine technology characterized by high certainty while the organic form is more appropriate for technologies dealing with high uncertainty. As Hage (1980) remarks, the difference between the mechanical and organic forms is one between the 19th century Prussian bureaucracy and the modern "high-tech" electronics firm. A related distinction worth noting is that the latter setting is substantially more professionalized;

employees' autonomy is protected in part by the norms created by active professional groups. While bureaucrats may be highly trained, their "expertise" is less likely to be recognized as a form of abstract knowledge or to be reinforced by independent occupational groups. By conducting our study in one class of organizations, we have severely reduced variability on these dimensions. Thus, an important task for future research is to identify other sources of variation associated with correspondence to different images.

There are two sets of additional variables that may be helpful in understanding different images. The first has to do with an organization's environment. For instance, Weick (1976) suggests that environmental heterogenity encourages decoupling which allows an organization to divide into separate parts to cope with divergent aspects of the environment. Uncertainty also promotes loose coupling by dividing risks. Each component group responds to uncertainty separately so that "mistakes" do not effect the whole organization. Interestingly, Burns and Stalker (1961) argue that uncertainty also promotes the organic form. On the other hand, declining resources promotes tighter coupling as central managers attempt to use their authority to reduce costs (Weick, 1976).

The second set of additional variables relates to organizational demographics such as size. Size is a quixotic variable. Weber (Gerth and Mills, 1946) assumed that the rational bureaucratic form would only be found in large organizations. Empirical studies have found a positive association between size and measures of rule enforcement (Blau and Schoenherr, 1971; Pugh, Hickson, Hinings, and Turner, 1969), but a negative association between size and centralization. Horizontal differentiation, a

correlate of size, might also promote decoupling as individual departments develop their own views of departmental and organizational goals and demand independence from central authorities on the basis of specialized knowledge. Environmental and demographic variables can vary substantially within one class of organization--they certainly do among schools--and it would be constructive to understand how they shape organizations to conform more to one image than to another.

Although further research is warranted, our work to date suggests clear implications for managers. A major difference between the rational bureaucracy and the loosely coupled system concerns predictions about managerial impacts on the work activity of organizations. At least in American public education, there seems to be a number of organizations that represent targets of opportunity for purposive administrative intervention. Schools that fall into our R-cluster are likely to be able to adopt a problem-solving orientation to the task of selecting organizational innovations, to implement organization-wide changes, and to use administrative influence to facilitate change. Schools in our L-cluster are more likely to favor opportunism and other garbage-can-like procedures in selecting innovations, to innovate at the classroom rather than the school level, and to be unable to use administrative mechanisms to facilitate the spread of organizational change (Firestone, 1980; Daft and Becker, 1978). Thus, the finding that schools fall into distinct clusters corresponding to different images of organization has substantial practical as well as theoretical utility.

FOOTNOTES

1. The preparation of this paper was supported by funds from the National Institute of Education grant No. NIE-G-81-0030. The opinions expressed here do not necessarily reflect the views of RBS. We wish to thank Bruce Wilson for his help with measurement and Thomas J. Marx for his work on the statistical analyses. Richard Hall, Karen Louis, and Gail MacColl provided useful critiques of an earlier draft.

2. Further details about school sampling and recruitment can be found in Firestone & Herriott (1982b, Appendix A).

3. We have adopted the convention of using initial capital letters when referring to our measure of a given concept (e.g., Goal Consensus) and only lower case letters when referring to the concept more generally (e.g., goal consensus).

4. For further details on measurement procedures, see Firestone & Herriott (1982b, Appendix B).

5. All statistical analyses reported in this paper were carried out using Statistical Analysis System (SAS) software. The cluster analyses used FASTCLUS without any updating of cluster leaders, the plotting used PLOT, and the discriminant analyses used DISCRIM and SYSREG. For a general discussion of the rationale behind our approach to cluster analysis see MacQueen (1967) and of our use of discriminant analysis see May (1982).

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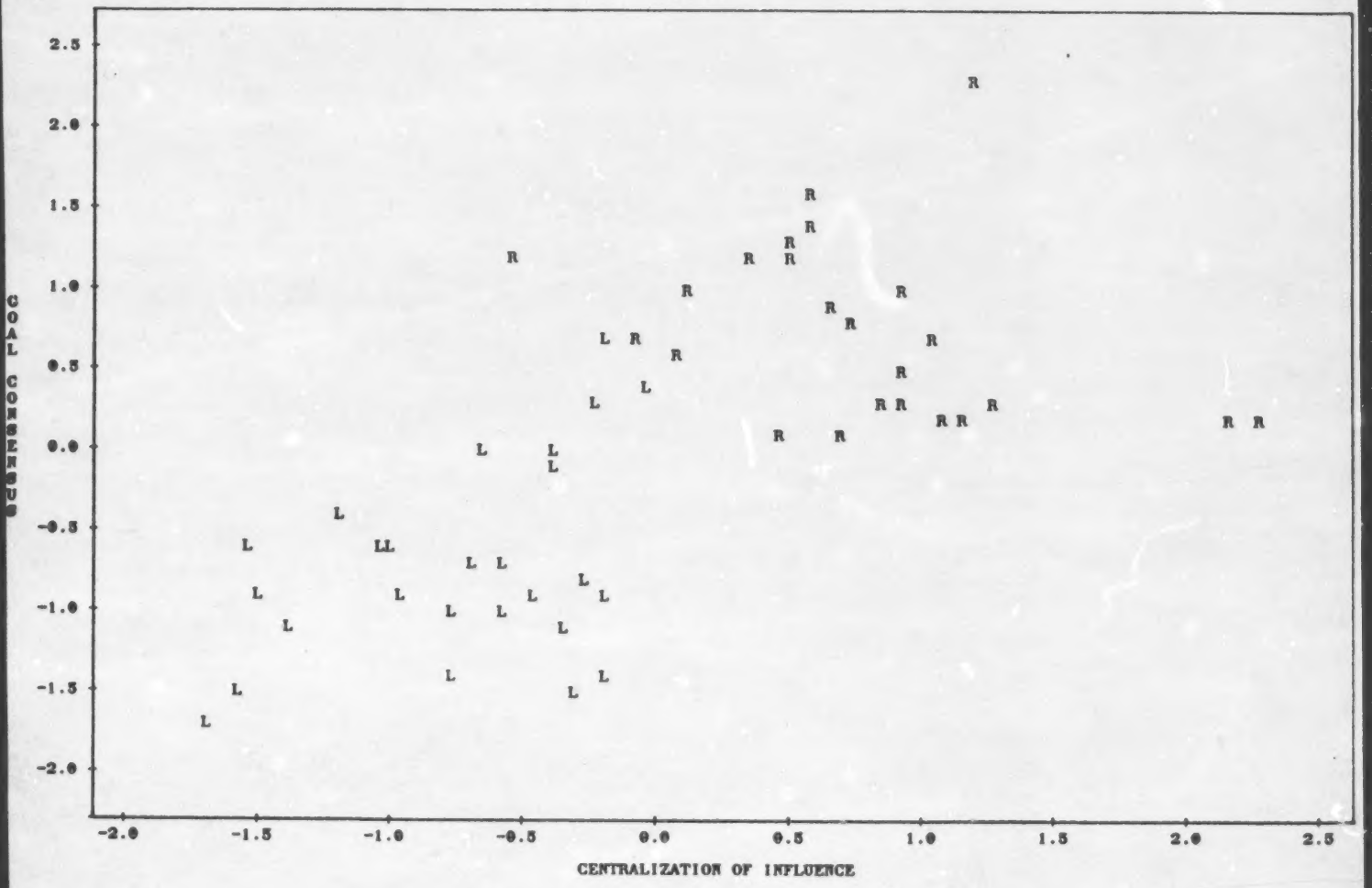

Figure 1. Scatter plot of the 50 schools on Goal Consensus and Centralization of Influence. ("R" = more like ideal typical rational bureaucracy. "L" = more like ideal typical loosely coupled system.)

Table 1

Summary Statistics for the Four Organizational Dimension Scores

Statistic	Organizational Dimension*			
	Goal Consensus	Centralization of Influence	Rule Enforcement	Vertical Communication
1. Mean	.351	-1.54	3.55	1.37
2. Standard deviation	.13	.36	.64	.35
3. Kurtosis	-.71	-.30	-.21	-.22
4. Skewness	.11	.25	-.50	.41
5. Minimum	.110	-2.20	1.97	0.74
6. Median	.370	-1.61	3.59	1.35
7. Maximum	.673	-0.66	4.73	2.17
8. Alpha Coefficient	--	.826	.707	.864
9. Number of items incorporated into the dimension score	7	4	3	5

*See text for the operational definition of each dimension score. The use of Kendall's coefficient of concordance (W) as the measure of goal consensus precluded the computation of an alpha coefficient.

Table 2

Pearson Product-moment Correlation Coefficients for the Four Organizational Dimension Scores (N = 50)

Dimension	Dimension 1.	2.	3.	4.
1. Goal Consensus	--	.642***	.238*	.347**
2. Centralization of Influence		--	.530***	.345*
3. Rule Enforcement			--	.302*
4. Vertical Communication				--

*p < .05
**p < .01
***p < .001

Table 3

Summary Statistics for the Cluster Analyses by Variable Set

Statistic	Variable Set		
	GC	GCR	GCRV
1. Number of schools assigned to the:			
a. R-cluster	24	23	22
b. L-cluster	26	27	28
2. Mean Euclidean distance between:			
a. R-cluster leader and:			
1. schools assigned to the R-cluster	2.25	2.63	3.24
2. schools assigned to the L-cluster	4.24	4.79	5.41
b. L-cluster leader and:			
1. schools assigned to the L-cluster	1.46	2.53	3.00
2. schools assigned to the R-cluster	3.54	4.59	5.15

Table 4

Summary Statistics for the Discriminant Analyses by Variable Set

Statistic	Variable Set		
	GC	GCR	GCRV
1. Number of instances in which the cluster assignment of the cluster analysis was confirmed by the discriminant analysis. (See Table 5 for details.)	49	49	50
2. Proportion of total variance in cluster assignment explained by the organizational variables (i.e., Adjusted R^2).	.73	.69	.64
3. Standardized discriminant function coefficient for:			
a. Goal Consensus	0.44	0.33	0.53
b. Centralization of Influence	0.50	0.46	0.03
c. Rule Enforcement	--	0.18	0.29
d. Vertical Communication	--	--	0.19

Table 5. Roster of Cluster Assignments from the Cluster Analyses, by Variable Set.*

School ID	Variable Set		
	GC	GCR	GCRV
01	R	R	R
02	R	R	R
03	L	L	L
04	R	R	R
05	R	R	R
06	R	R	R
07#	R	R	L
08	R	R	R
09	L	L	L
10	R	R	R
11#	R	R	L
12	R	R	R
13	R	R	R
14#	R	L	L
15	R	R	R
16#	L**	R	R
17#	R	R	L
18	L	L	L
19	R	R	R
20	L	L	L
21	R	R	R
22	L	L	L
23	L	L	L
24	R	R	R
25	R	R	R
26	L	L	L
27	L	L	L
28	L	L	L
29	L	L	L
30	L	L	L
31	L	L	L
32#	R	L**	R
33	L	L	L
34	R	R	R
35	L	L	L
36	L	L	L
37	L	L	L
38	R	R	R
39	L	L	L
40	L	L	L
41	L	L	L
42#	L	L	R
43	L	L	L
44	R	R	R
45	R	R	R
46	L	L	L
47	L	L	L
48	R	R	R
49	L	L	L
50	L	L	L

* R = In cluster in rational bureaucratic direction
L = In cluster in loosely coupled system direction

** Cluster assignment from the cluster analysis not confirmed by the discriminant analysis.

Cluster assignment from the cluster analysis not consistent across all variable sets.

APPENDIX I. MEASUREMENT OVERVIEW

An overview of the questionnaire approach designed to tap each of four organizational dimensions is presented below. Those items subsequently found to exhibit sufficient validity and reliability to be included in one of the four school-level dimension scores are noted with an asterisk. (For a detailed presentation of measurement procedures, see Firestone & Herriott, 1982: Appendix B.)

1. Goal Consensus

Each teacher-informant was asked to rank order seven "areas of student development" in terms of "how important they are to you as a member of this school." The areas are:

*a. Appreciation and striving for excellence (in school work or other areas).

*b. Critical and original thinking.

*c. Basic skills (reading and math).

*d. Respect for authority (discipline, character building, etc.).

*e. Vocational understanding and skills.

*f. Understanding others (cultural pluralism, getting along with peers, etc.).

*g. Self-esteem (self-concept).

2. Centralization of Influence

For each of nine "decisions", each teacher-informant was asked to code the "actual influence" of "teachers" and "the principal" in his/her school in terms of four ordered categories of influence. For each decision, the

degree of centralization was computed by subtracting the teacher influence code from principal influence code. The decisions are:

*a. Selecting required texts and other materials.

*b. Establishing objectives for each course.

*c. Determining daily lesson plans and activities.

*d. Determining concepts taught on a particular day.

e. Adding or dropping courses.

f. Hiring and firing teachers.

g. Making specific faculty grade level and course assignments.

h. Identifying types of educational innovations to be adopted.

i. Working out details for implementing these innovations.

3. Rule Enforcement

For each of seven "policy areas," each teacher-informant was asked to code "policy existence" in terms of four nominal categories. If a policy was reported to exist each informant was then asked to code "policy enforcement" in terms of seven ordered categories. The degree of enforcement for each area involved the combination of these two codes. The policy areas are:

*a. Lesson plans.

b. Textbook selection.

c. Discussion of controversial topics in the classroom.

*d. Use of curriculum guides.

e. Use of corporal punishment.

f. Parental visitation.

*g. Arrival and departure times for teachers.

4. Vertical Communication

For each of ten "topics," each teacher-informant was asked to code the frequency (in terms of six ordered categories) with which he/she "talks to administrators in (his/her) school about each topic." The topics are:

*a. Lessons or curriculum units that work well or poorly.

b. Tactics for teaching specific children.

*c. Tactics for motivating or controlling specific children.

*d. Ways to improve discipline generally.

*e. Ways to improve curriculum and course offerings.

*f. How to maintain and improve positive relations with parents.

g. Ways to improve and maintain working relations among teachers.

h. Ways in which the satisfaction or morale of teachers would be improved.

i. Quality of leadership of the building and district.

j. Social and personal matters.